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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/730,173	12/08/2003	Peter Dwight Spohn	1035-O4239	2894

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EXAMINER	
LEUNG, PHILIP H	

ART UNIT	PAPER NUMBER
3742	

DATE MAILED: 07/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/730,173	SPOHN ET AL.	
	Examiner	Art Unit	
	Philip H. Leung	3742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 April 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21,34,35 and 40-50* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21, 34, 35 and 40-50* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-9, 11-14, 16-21 and 40-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Erickson (US 2,839,651) or Uemura (JP 9-215605), in view of Guiles et al (US 6,056,844) or Stark et al (US 2002/0113066 A1) (all previously cited).

Erickson shows a heating belt 10 formed of rubber with conductive members 11 embedded in the rubber materials so that it is inductively heated by heating unit 20 having an induction heating coil 25 (see Figures 3 and 4 and col. 2, line 33 – col. 3, line 46). It uses conductive cables 11 or wires (col. 4, lines 59-66) instead of particles as the inductively heatable material with the polymer material as the belt composite material. Uemura also shows a heating belt made of a steel band 7 covered with rubber sheet 33 to be heated by induction coil 13 for heating food objects 11 (see Figures 1, 5 and 6 and the English translation). Uemura uses a rubber-covered steel band as the belt instead of inductively heatable particles. Guiles shows an induction heating device using a susceptor material comprising a polymer material mixed with induction heatable particles including materials as shown in Figures 3 and 5 (see Figures 1, 3 and 5 and col. 2, line 41 – col. 3, line 27). Stark also shows an induction heating device using inductively heatable particles including materials, such as, SrF powders, in a polymer material as an induction susceptor (see Figures 1, 3, 5, 6 and paragraphs [0016], [0019]- [0022] and [0027]-

[0034]). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Erickson or Uemura to use inductively heatable particles with the polymer material of the belt for better heating temperature control and more uniform heating result, in view of the teaching of Guiles or Stark. The exact material of the particles and composition of the belt susceptor material would have bee a matter of engineering variations of all the examples shown in Guiles or Stark following their teaching (see Guiles, col. 41 – col. 2, line 19 and Stark, paragraphs [007] – [0018]).

3. Claims 10, 15, 34, 35 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Erickson (US 2,839,651) or Uemura (JP 9-215605), in view of Guiles et al (US 6,056,844) or Stark et al (US 2002/0113066 A1), as applied to claims 1-9, 11-14, 16-21 and 40-49 above, and further in view of Kinouchi et al (US 6,087,641) (previously cited).

Erickson or Uemura shows the belt is formed of rubber. It does not specifically state that the rubber is of silicone rubber. Kinouchi shows an induction heating device using an inductively heatable belt formed of a ferromagnetic metallic material with a silicone rubber coating (see Figures 1 and 2 and col. 4, line 33 – col. 5, line 11). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Erickson or Uemura to use any type of rubber material as the cover layer of the belt including silicone rubber for better adhesion prevention, in view of the teaching of Kinouchi.

4. Claims 1-9, 11-14, 16-18 and 40-42 and 45 are further rejected under 35 U.S.C. 103(a) as being unpatentable over Yoneda et al (US 5,752,148) (newly cited), in view of Guiles et al (US 6,056,844) or Stark et al (US 2002/0113066 A1).

Yoneda shows a heating belt 5 formed of a conductive member provided with a surface having a heat-release resistant-type layer or heat-resistant rubber layer provided with carbon steel, stainless steel alloy, nickel or the like (col. 5, lines 5-10) so that it is inductively heated by heating unit 15a having an induction heating coil 3a (see Figures 2 and 3, col. 2, line 53 – col. 3, line 19 and col. 4, line 39 – col. 5, line 67). It does not specify how the conductive material, such as steel alloy or nickel, is made with the rubber layer. As pointed out above, Guiles shows an induction heating device using a susceptor material comprising a polymer material mixed with induction heatable particles including materials as shown in Figures 3 and 5 (see Figures 1, 3 and 5 and col. 2, line 41 – col. 3, line 27). Stark also shows an induction heating device using inductively heatable particles including materials, such as, SrF powders, in a polymer material as an induction susceptor (see Figures 1, 3, 5, 6 and paragraphs [0016], [0019]- [0022] and [0027]-[0034]). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Yoneda to use inductively heatable particles with the polymer material of the belt for better heating temperature control and more uniform heating result, in view of the teaching of Guiles or Stark. The exact material of the particles and composition of the belt susceptor material would have bee a matter of engineering variations of all the examples shown in Guiles or Stark following their teaching (see Guiles, col. 41 – col. 2, line 19 and Stark, paragraphs [007] – [0018]).

5. Claims 10, 15, 34, 35 and 50 are further rejected under 35 U.S.C. 103(a) as being unpatentable over Yoneda et al (US 5,752,148), in view of Guiles et al (US 6,056,844) or Stark et al (US 2002/0113066 A1), as applied to claims 1-9, 11-14, 16-18, 40-42 and 45 above, and further in view of Kinouchi et al (US 6,087,641).

Yoneda shows the belt is formed of a rubber layer. It does not specifically state that the rubber is of silicone rubber. Kinouchi shows an induction heating device using an inductively heatable belt formed of a ferromagnetic metallic material with a silicone rubber coating (see Figures 1 and 2 and col. 4, line 33 – col. 5, line 11). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Yoneda to use any type of rubber material as the cover layer of the belt including silicone rubber for better adhesion prevention, in view of the teaching of Kinouchi.

6. Applicant's arguments and the Declaration under 37 CFR 1.132 filed 4-5-2006 have been fully considered but they are not persuasive. It is emphasized again the all that is being claimed is a heating belt comprising a flexible support coated with a polymer and inductively-heatable particles. This is clearly taught by the prior art of record as set forth above. More particularly, inductively heatable heating belts are old and well known as taught by Erickson or Uemura. Erickson shows a heating belt formed of rubber with conductive members embedded in the rubber materials so that it is inductively heated. Uemura shows a cooking heating belt made of a steel band covered with rubber sheet to be heated by induction coil for heating food objects. It can be seen that both Erickson and Uemura show that it is well known to use a flexible material with conductive members embedded therein as an inductively heatable belt material. They use a

different inductively heatable susceptor material. However, the use of polymer with inductively-heatable particles as an inductively heatable susceptor is also well known in the art as shown by the secondary references, namely, Guiles and Stark. Guiles shows an induction heating device using a susceptor material comprising a polymer material mixed with induction heatable particles as claimed. Guiles clearly teaches its invention "focuses on improving the induction heating process by optimizing the susceptor design for effective .....the invention uses ferromagnetic particles, "smart susceptors", which generate heat through hysteresis losses ..... Susceptors have the unique feature of "turning off" when they reach their Curie temperature" (col. 1, lines 41-52). In view of this and other advantages as set forth at col. 1, line 22 – col. 2, line 19 of Guiles, it would have been obvious to any ordinary skill in the art to modify the heating belt of Erickson or Uemura to add or substitute the conductive material in the belt with the "smart susceptor for better heating temperature control. Similarly, Stark also shows a similar susceptor material including materials, such as, SrF powders, in a polymer material as an inductively heatable material. In addition, Stark teaches the use of this "smart susceptor" material in induction cooking devices (Figures 8-10). Therefore, it can be seen the use of ferromagnetic particles in a polymer material as a susceptor in an induction heating or cooking device is very popular because of the well known "Curie temperature" characteristic. To apply this temperature control method in any induction heating device would have been blatantly obvious to an ordinary skill artisan with these references before him/her.

The argument in the Declaration that addition of inductively heatable particles to the polymer of the Erickson belt would have little or no influence on the heating temperature may be true. However, as it is previously set forth, the "smart susceptor" material of the secondary

references may substitute the conductive material 11 depending on the use of the heating belt. The argument in the Declaration that Uemura uses a steel belt without a composite or polymer material is not well taken. As previously pointed out, Uemura may be covered with a rubber layer 33 as shown in Figures 5 and 6 and paragraph [0016].

Furthermore, in order to emphasize the broadness of the claimed structure, most of the claims are further rejected over Yoneda which is cited to show a thin belt for an image fixing device which uses a conductive member provided with a surface having a heat-release resistant-type layer or heat-resistant rubber layer provided with carbon steel, stainless steel alloy, nickel or the like for forming the heating belt.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Philip H. Leung whose telephone number is (571) 272-4782.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robin Evans can be reached on (571)-272-4777. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Philip H Leung
Primary Examiner
Art Unit 3742

PLeung/pl
6-22-2006